British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Open Data in Science and Research

"Raw Data Now"

Agenda

- Demand
- Emerging Policy
- NERC Response
- Benefits to BGS Scientists
- Risks for BGS Scientists
- The Help

DEMAND

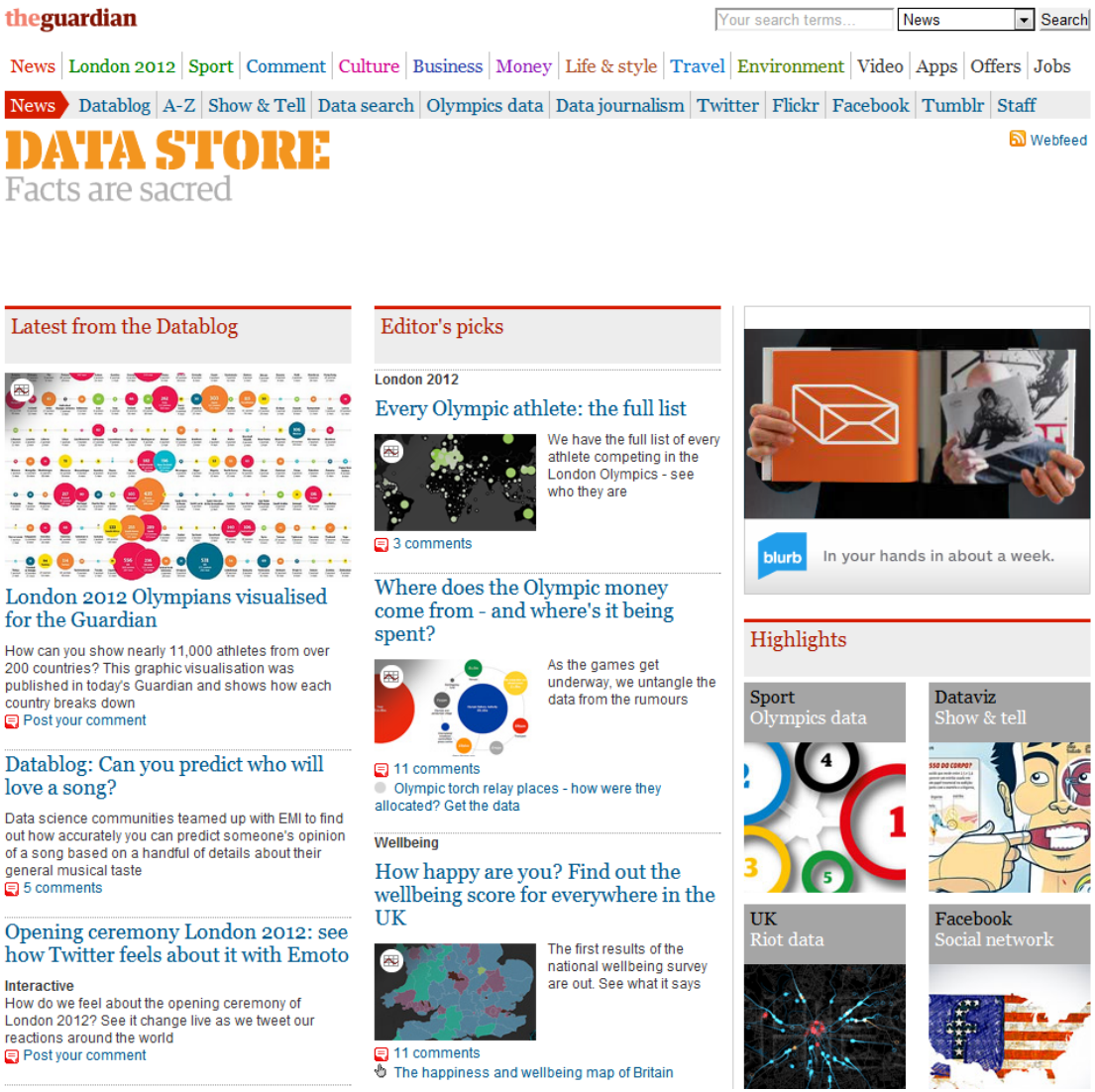
“The future belongs to the companies and people that turn data into products.”

Mike Loukides author of O’REILLY’s What Is Data Science?

Tim Berners-Lee calls for **‘Raw Data Now’**

In 2009, World Wide Web inventor Tim Berners-Lee stood in front of the TED Conference and made a call for 'Raw Data Now' - asking data holders to put their information on the web in accessible and open formats, rather than keeping it locked away in internal systems, or only publishing summaries in report.

Guardian Data Store



Neelie Kroes

Vice-President of the European Commission

"Taxpayers should not have to pay twice for scientific research and they need seamless access to raw data."

EMERGING POLICY

theguardian

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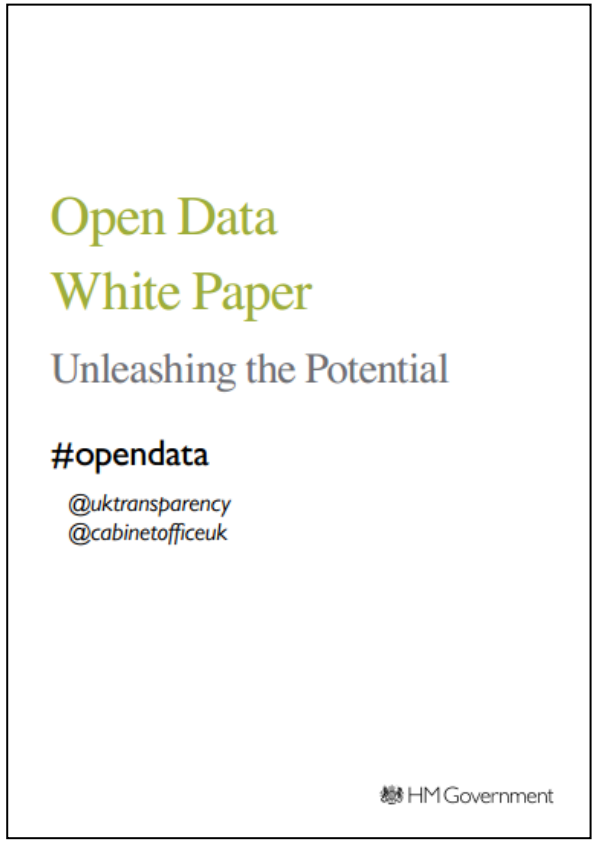
transparencyhub

From our public leaders network

Previous Blog home

White paper heralds new era of open data and innovation

It's time to build on the raw material of our age, by taking a democratic approach to public sector information



Open Data

White Paper

Unleashing the Potential

#opendata

@uktransparency

@cabinetofficeuk

HM Government

"more data, more easily accessible and in a readily usable form, to increase government accountability, drive improved public services, increase choice, and feed innovation and growth."

Cabinet Office

About the Cabinet Office | National Security | Constitutional Reform | Government Efficiency | Transparency

Francis Maude speech to Policy Exchange - The Big Data Opportunity

Minister for the Cabinet Office Francis Maude made a speech on Big Data to the Policy Exchange on 3 July 2012.

"We will keep putting more data, of higher quality, into the public domain so everyone can reap the benefits of transparency and open data in the future. The prize – better public services and a more prosperous UK – is just too good to ignore."

SUMMARY

The practice of science

Open inquiry is at the heart of the scientific enterprise. Publication of scientific theories - and of the experimental and observational data on which they are based - permits others to identify errors, to support, reject or refine theories and to reuse data for further understanding and knowledge. Science's powerful capacity for self-correction comes from this openness to scrutiny and challenge.

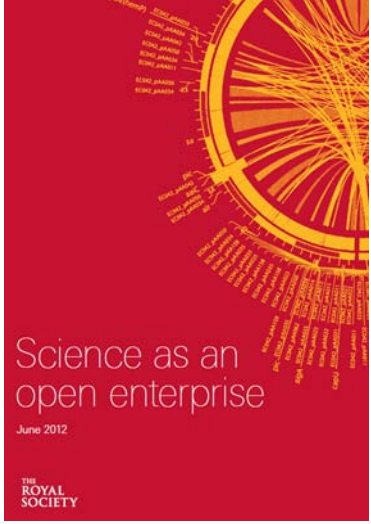
Vince Cable touts benefits of open borders and open data

Business secretary believes we should stop moaning about the UK 'brain drain'

By Anh Nguyen | Computerworld UK | Published 17:17, 13 July 12

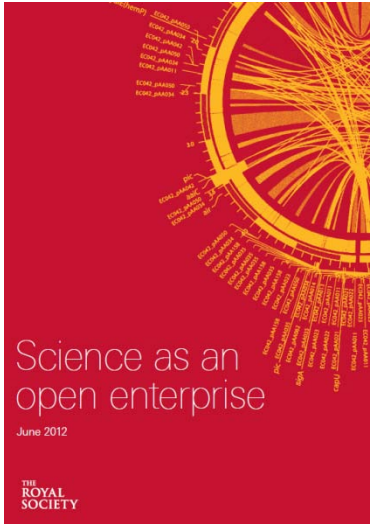
Business secretary Vince Cable has spoken out in favour of opening up borders for scientists and technologists in the ongoing debate over the offshoring of IT skills.

Speaking at a Royal Society event yesterday, Cable was keen to highlight the benefits of openness and internationalisation of UK science.



Cable said.

"Improving access to data will not only enhance transparency but fuel innovation, and we are just beginning to understand the potential of data mining to accelerate scientific breakthroughs and their translation into practical applications."

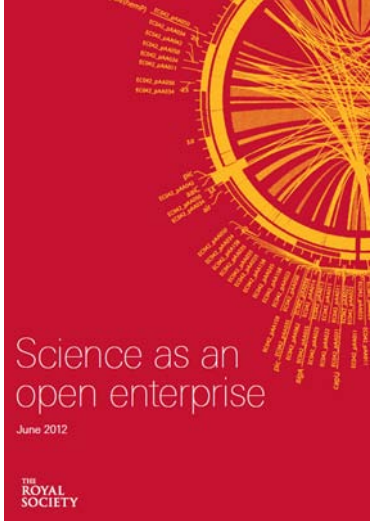


Applicable Recommendation 1

Scientists should communicate the data they collect *and the models they create, to allow free and open access, and in ways that are intelligible, assessable and usable for other specialists in the same or linked fields wherever they are in the world. Where data justify it, scientists should* **make them available in an appropriate data repository.** *Where possible, communication with a wider public audience should be made a priority, and particularly so in areas where openness is in the public interest.*

Applicable Recommendation 2

Universities and research institutes should play a major role in **supporting an open data culture** *by: recognising data communication by their researchers as an important criterion for career progression and reward; developing a data strategy and their own capacity to curate their own knowledge resources and support the data needs of researchers; having open data as a default position, and only withholding access when it is optimal for realising a return on public investment.*



Applicable Recommendation 3

Assessment of university research should **reward the development of open data** *on the same scale as journal articles and other publications, and should include measures that reward collaborative ways of working.*

Applicable Recommendation 5

Research Councils *and Charities should* **improve the communication of research data from the projects they fund** *by recognising those who could maximise usability and good communication of their data; by including the costs of preparing data and metadata for curation as part of the costs of the research process; and by working with others to ensure the sustainability of datasets.*

NERC RESPONSE

HM Government

Log in or sign up

DATA.GOV.UK Beta
Opening up Government

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Search | Map Search | Publishers | Tags | Public Roles & Salaries | Spend Browser

Data Search

493
Results

British Geological Survey — Search

Your search: Tag: NERC_DDC ×

Geological Indicators of Flooding Great Britain

Publisher : British Geological Survey

Provider:

The BGS Geological Indicators of Flooding (GIF) dataset is a digital map based on the BGS Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50, BGS, 2009). Current...

Formats:

GeoIndex Geological Memoirs

Publisher : Scottish Government Spatial Data Infrastructure

Provider:

This layer of the GeoIndex shows areas covered by explanatory sheet Memoirs. The memoirs themselves provide a comprehensive and detailed account of all aspects of the geology of the areas...

BGS Surface geology (OGC WxS)

SERVICE

Publisher : British Geological Survey

Provider:

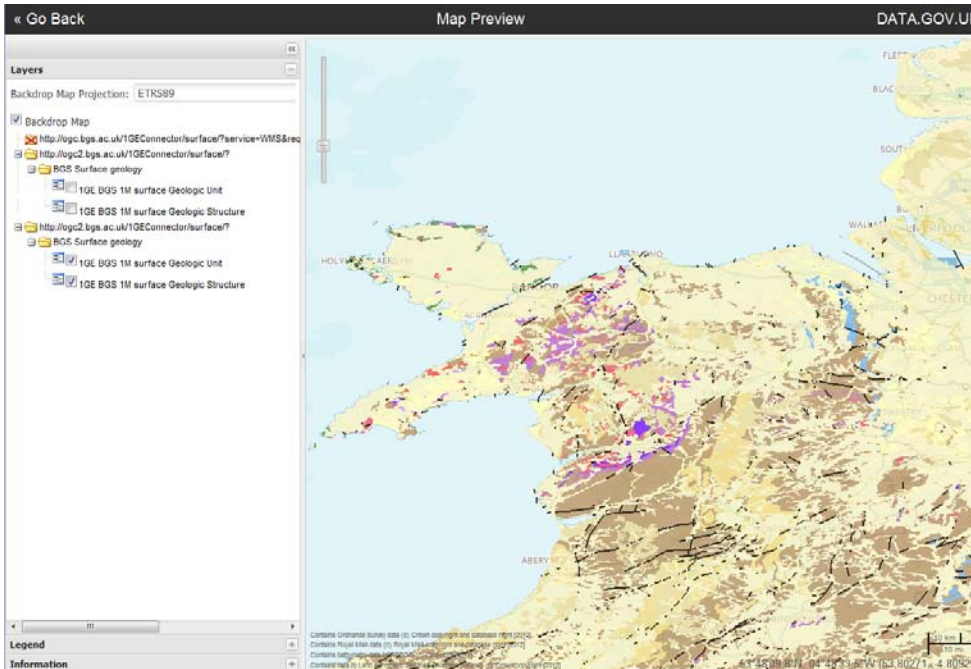
Data from the DiGMap covering the whole of the United Kingdom at a scale of 1:625 000 is available in this OGC WMS service for personal, non-commercial use only. The service is a...

Formats: WMS

Preview on Map | Add to Preview List

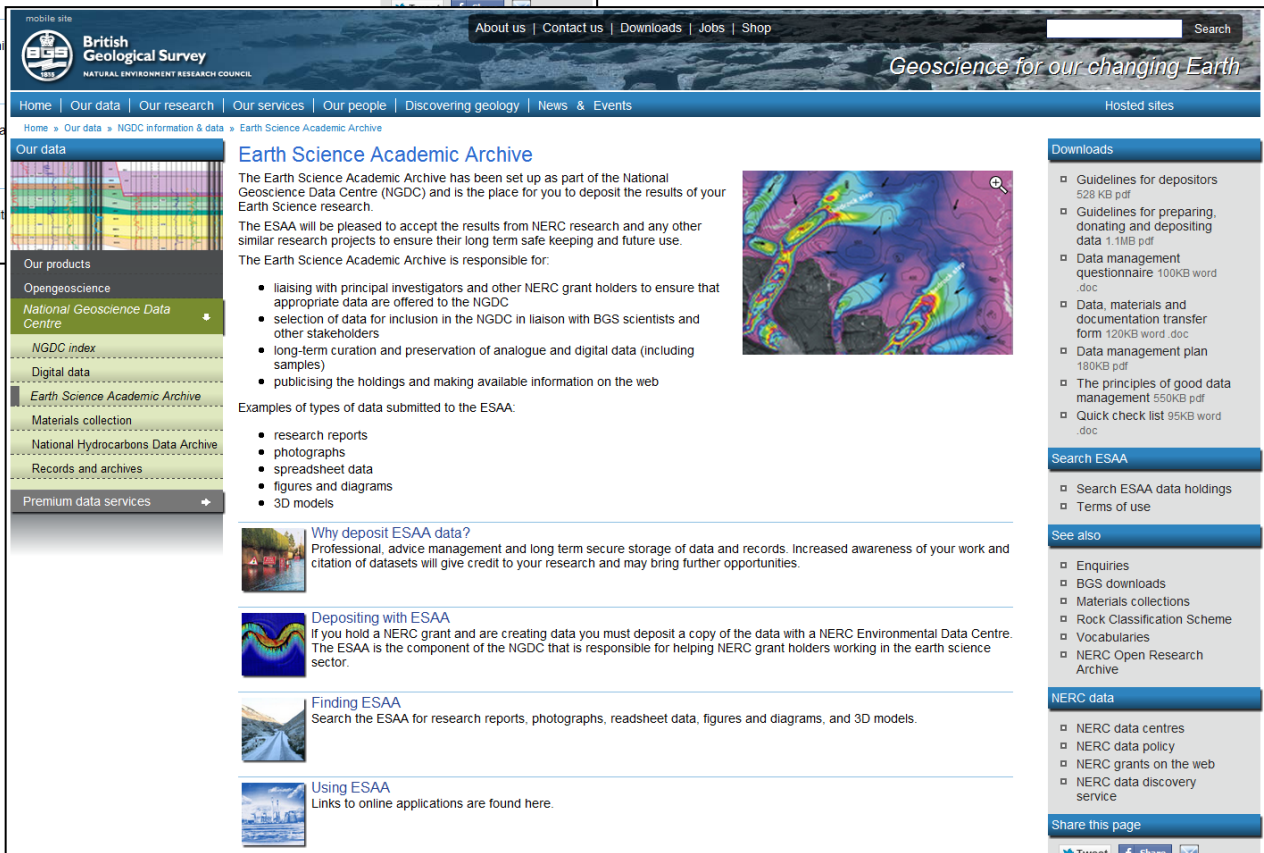
What does it mean?

Scientists should communicate the data they collect…



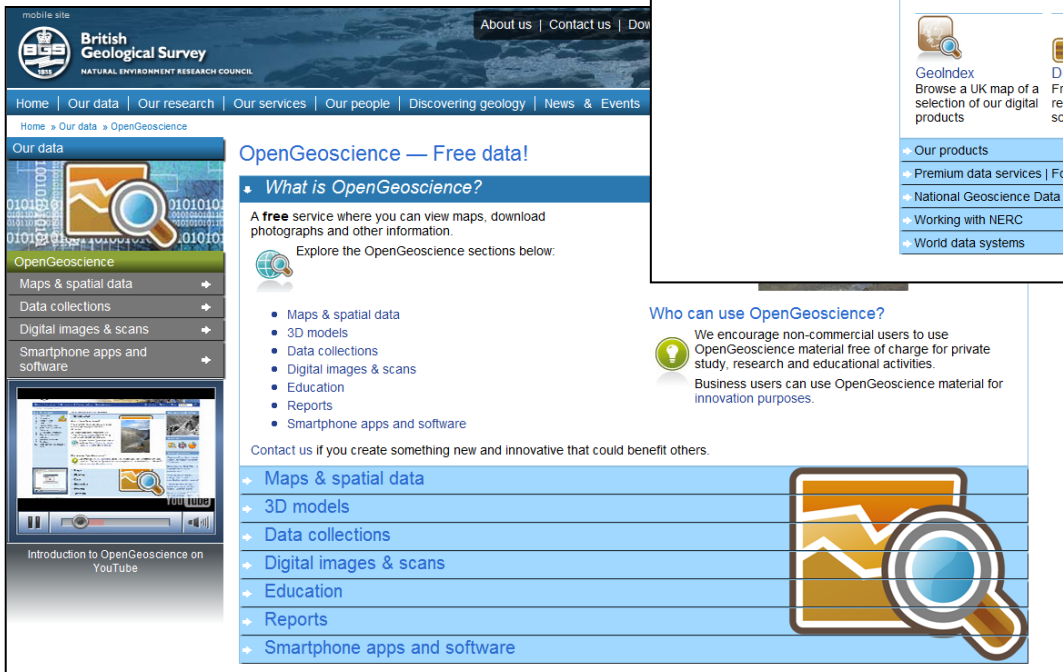
What does it mean?

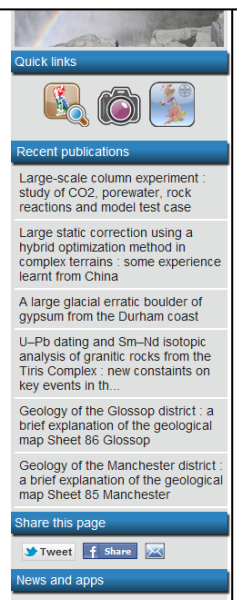
…make them available in an appropriate data repository…



What does it mean?

… supporting an open data culture…





What does it mean?

Coming soon – hopefully?

…reward the development of open data…

Open Access Geoscience Data Journal Launched by Wiley

JULY 17, 2012

Geoscience Data Journal is online-only and will publish short data papers (articles describing a dataset, giving details including collection, processing, software and file formats) covering topics ranging from weather and climate, to oceanography, atmospheric chemistry and geology. All published data papers will be linked to datasets, which provide details of the collection, processing and file formatting of data.

What does it mean?

…reward the development of open data…

Editors include:

Richard Hughes PhD CGeol
Director of Information and Knowledge Exchange
British Geological Survey
Keyworth, Nottinghamshire
UK
rah@bgs.ac.uk

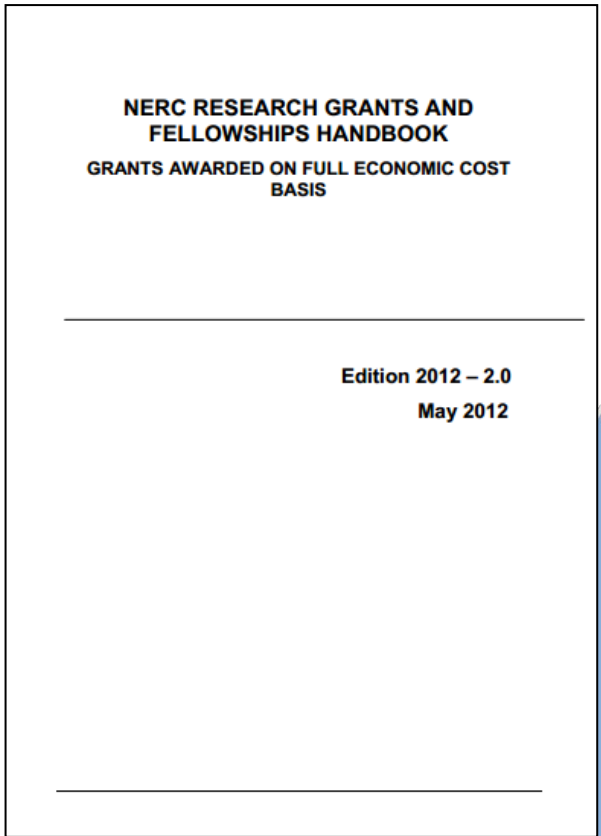
Data Availability

111. …Investigators should therefore **make sure that a NERC Designated Centre is aware** of any significant datasets to be compiled as a result of their projects, so that the long-term future of these data can be planned….

…At the end of an award Investigators are required to **offer the appropriate Data Centre a copy of any dataset generated**, so that the data can be made available for other researchers. The Intellectual Property Rights to the data need not be transferred.

What does it mean?

…improve the communication of research data from the projects they fund…


NERC RESEARCH GRANTS AND FELLOWSHIPS HANDBOOK

GRANTS AWARDED ON FULL ECONOMIC COST BASIS

Edition 2012 – 2.0

May 2012

NERC Open Data Statement

From January 2011 NERC will make the environmental data in its Data Centres freely available without restrictions on use. This is to increase the openness and transparency of the research process, and to encourage the development of new and innovative uses for these data. To help support this, **NERC will require environmental data collected from the activities it funds to be made openly available within two years of their collection**. These are just a couple of the changes that NERC will make with the introduction of its new Data Policy. The policy will be launched in October and will come into force in January 2011.

NERC Science Information Strategy
Headlines

The vision for the NERC SIS is to provide a world class service to deliver integrated data for earth system science.

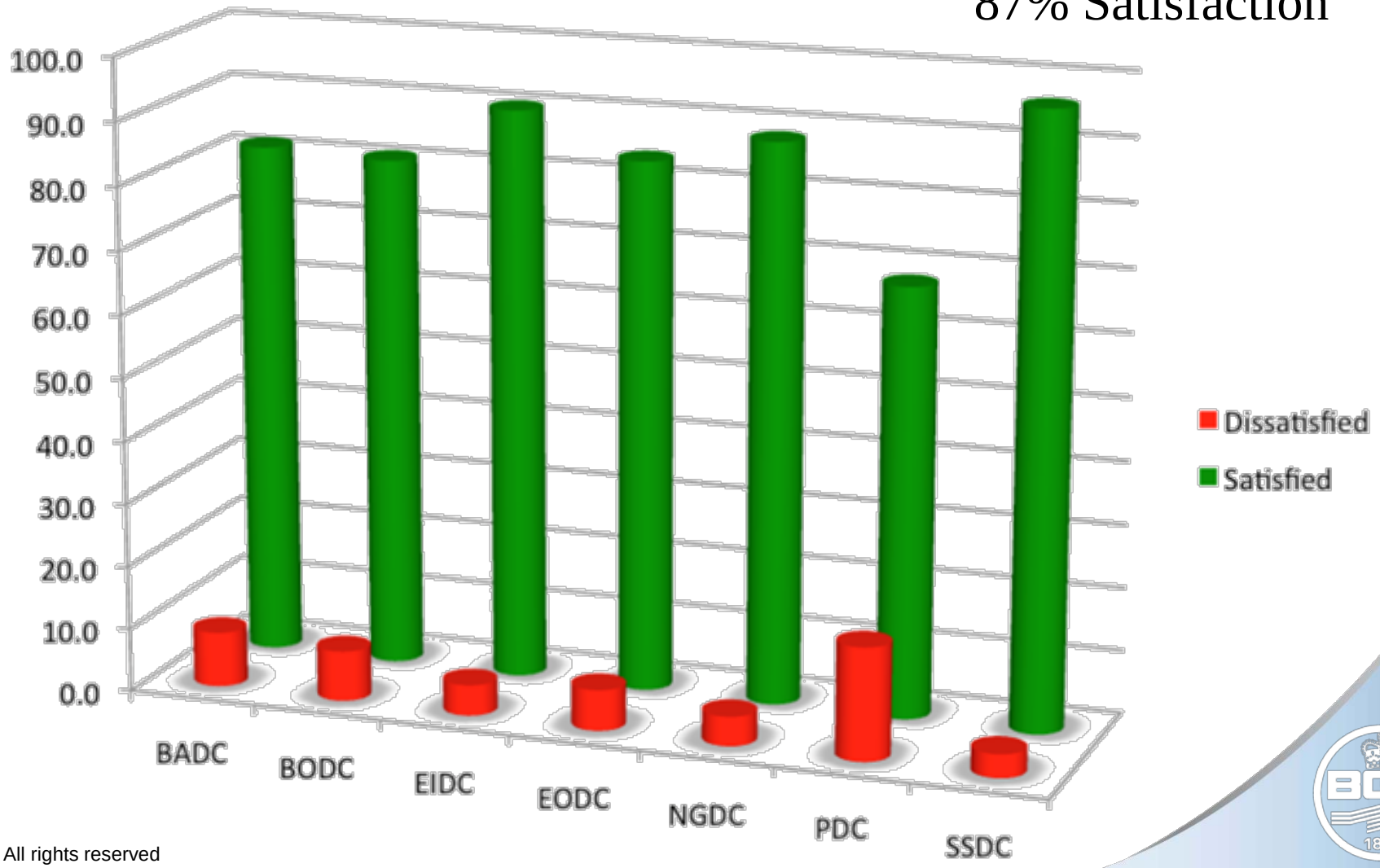
- Providing simple and coordinated access to NERC's data and information assets.
- Using common standards to enable integrated access to all data held within NERC's data centres and the promotion of reuse and repurposing.

NERC Science Information Strategy
Headline Deliverables

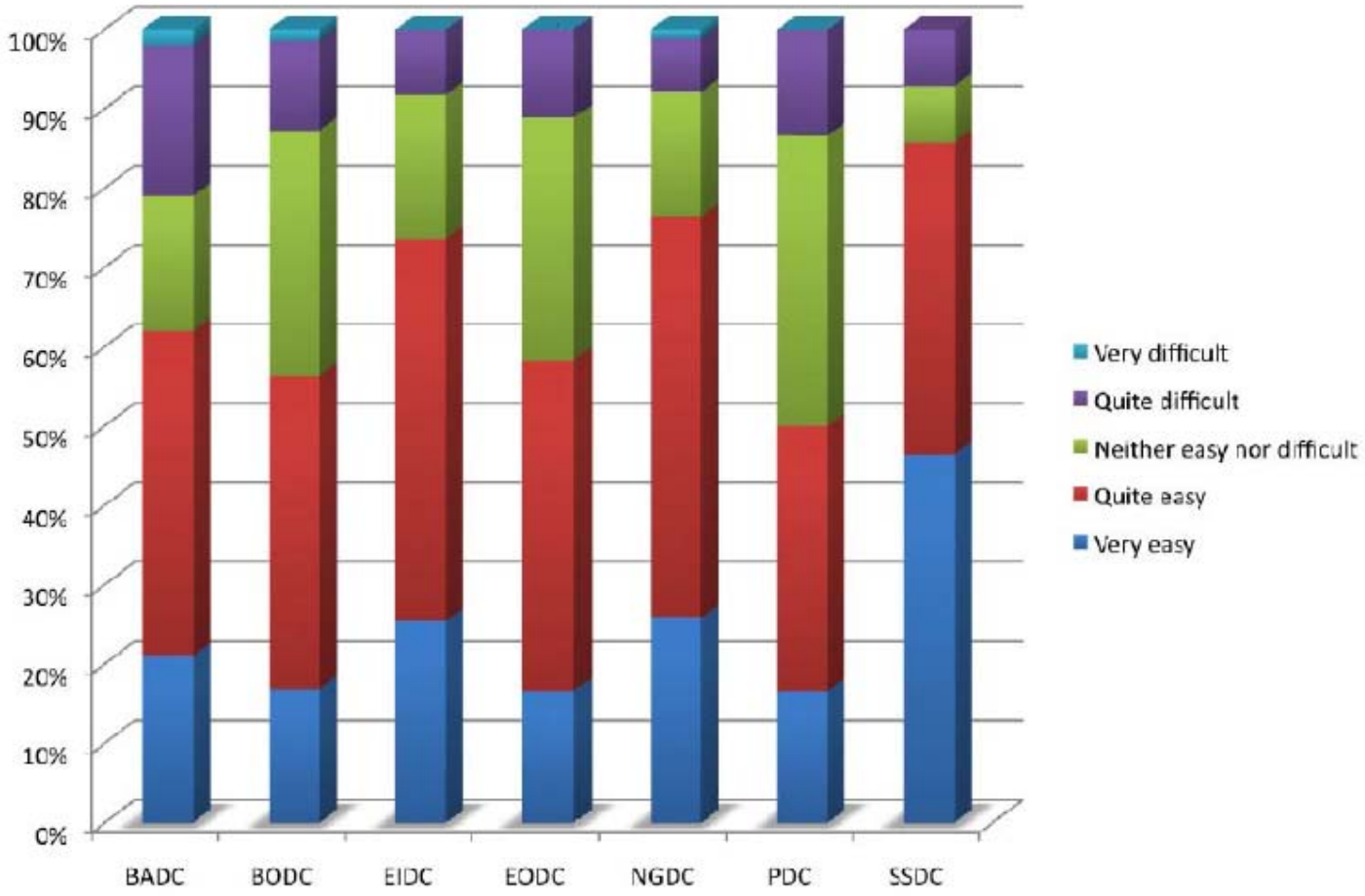
- Stakeholder Analysis
- NERC Data Policy
- Long-term Governance Model
- NERC Data Centres Roles and Responsibilities
- NERC Data Centre Metrics
- NERC Data Catalogue Service
- NERC Data Value Check List
- Digital Object Identifiers (DOI) to Support Data Publishing
- Model Code Management

Stakeholders Analysis
User Satisfaction

87% Satisfaction



Stakeholders Analysis
Finding what you need



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  - National capability
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      - Earth sciences
      - Earth observation
      - Marine science
      - Polar science
      - Science-based archaeology
      - Terrestrial &

NERC Data Policy

The NERC Data Policy details our commitment to support the long-term management of environmental data and also outlines the roles and responsibilities of all those involved in collecting and managing environmental data. The NERC data centres provide support and guidance in data management to those funded by NERC, are responsible for the long-term management of data and provide access to NERC's holdings of environmental data.

We have created our data policy to be consistent with legal frameworks, such as the Environmental Information Regulations 2004, the INSPIRE Regulations 2009 and contractual arrangements with other bodies where, for example, NERC holds data on their behalf but does not own the intellectual property rights.

To reflect NERC's continuing commitment to openness and transparency in the research process, and in support of the government's developing agenda on open access to public data, the NERC Data Policy has been substantially revised, and this new version of NERC's Data Policy came into force

Related links

» **NERC policies**

External links

» **Environmental Information Regulations 2004**

» **INSPIRE Regulations 2009**

This page contains a downloadable file.
Please visit our **plug-ins** page if you are having difficulty accessing the content.

NERC Data Policy Key Principles

The **environmental data produced by the activities funded by NERC are considered a public good and they will be made openly available for others to use**. NERC is committed to supporting long-term environmental data management to enable continuing access to these data.

NERC Data Policy Statement

NERC has a policy on data in order to:

a. Ensure the continuing availability of environmental data of long-term value for research, teaching, and for wider exploitation for the public good, by individuals, government, business and other organisations.
b. Support the integrity, transparency and openness of the research it supports.
c. Help in the formal publication of data sets, as well as enabling the tracking of their usage to be tracked through citation and data licences.
d. Meet relevant legislation and government guidance on the management and distribution of environmental information.

NERC defines **environmental data** as individual items or records (both digital and analogue) usually obtained by measurement, observation or modelling of the natural world and the impact of humans upon it. This includes data generated through complex systems, such as information retrieval algorithms, data assimilation techniques and the application of models.

This policy covers environmental data acquired, assembled or created through research, survey and monitoring activities that are either fully or partially funded by NERC. It also applies to environmental data managed by NERC where NERC was not the original funder. This policy does not cover NERC's **information products***.

This policy will be reviewed at regular intervals to ensure it keeps pace with scientific requirements and data management best practice.

Key principles

The environmental data produced by the activities funded by NERC are considered a public good and they will be made openly available for others to use. NERC is committed to supporting long-term environmental data management to enable continuing access to these data.

NERC will supply the environmental data it holds for free, apart from a few special cases as detailed in the policy.

NERC requires that all environmental data of long-term value generated through NERC-funded activities must be submitted to NERC for long-term management and dissemination.

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BENEFITS TO BGS SCIENTISTS

Benefits to BGS Scientists

- Data is becoming a recognised output
- Easier access to other data
- Increased recognition
- Collaboration opportunities
- NGDC – supporting dataset publishing

Data is becoming a recognised output

- Emerging data journals
- Citations for datasets
- Digital object identifiers
- Website listings through DOI – ‘Landing Pages’
- Output and performance measures
- Associated with re-use and re-purposing of datasets

Data Citations

mobile site

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NATURAL ENVIRONMENT RESEARCH COUNCIL

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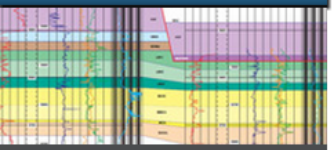
Our data



- Our products
- Opengeoscience
- National Geoscience Data Centre
  - NGDC index
  - Digital data
  - Earth Science Academic Archive
  - Materials collection
  - National Hydrocarbons Data Archive
  - Records and archives
- Premium data services

NGDC cited data

The rationale behind cited data:

- Get credit for your work
- Publish in data journals
- Show the value of your data
- Ensure your data will be available in future

There is increasing demand from the scientific community for a strong linkage between papers published in the scientific literature and the data upon which they are based and for a mechanism to reward data collection through citation.

NGDC cited data catalogue

A list of all the formally cited datasets held by the NGDC showing the title, author(s) and the DOI which links to the landing page with metadata links and direct access to the data where appropriate.

- Citing datasets
- NGDC data citation process
- Data set standards
- Contacts

Coming Soon

Our services

- Enquiries
- Discovery metadata
- GeoIndex
- OpenGeoscience
- GeoRecords
- NORA

See also

- NGDC cited data catalogue
- Making data a first class scientific output

External links

- NERC Data Centres
- British Library
- DataCite
- NERC Data Policy
- BODC Published Data Library
- BADC data
- CEH Information Gateway

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DOI – ‘Landing Page’

doi:10.5285/9df8df52-d6a5-37a8-e044-0003ba9b0d98

http://www.bgs.ac.uk/services/NGDC/citedData/catalogue/9df8df52-d6a5-37a8-e044-0003ba9b0d98.html

http://bgsintranet/docs/IMP/GuidelinesForScientists_v5_9May2012.pdf

Guidance document for NERC scientists wishing to have DOIs assigned to their datasets
Version 5 – 9th May 2012

Guidance document for NERC scientists wishing to have DOIs assigned to datasets

Introduction:

NERC now has the ability to issue Digital Object Identifiers (DOIs[1])to datasets held in its Environmental Data Centres. This is a result of collaboration between the NERC data centres, the British Library and DataCite.

This document takes the form of a set of questions and answers (with the data producers asking the questions), providing information for scientists wishing to have a DOI assigned to a dataset stored in any of the NERC environmental data centres (EDCs). Note that NERC will only mint DOIs for datasets stored in the EDCs

Why should I get a DOI for my dataset and how does this benefit me?

The NERC EDCs are proposing dataset citation using DOIs as a method of obtaining academic credit for the work put into creating, managing and curating a dataset. With a formal citation and DOI, it becomes possible to piggy-back on existing methods for counting the impact of journal papers, providing an indication of how cited (and therefore how used) a dataset is.

Easier access to other data

- More datasets will be made freely available which opens up research and collaboration opportunities.
- Easier discovery of datasets through the DOIs and associated ‘Landing Pages’.
- These datasets will be easier to use and exploit for research.

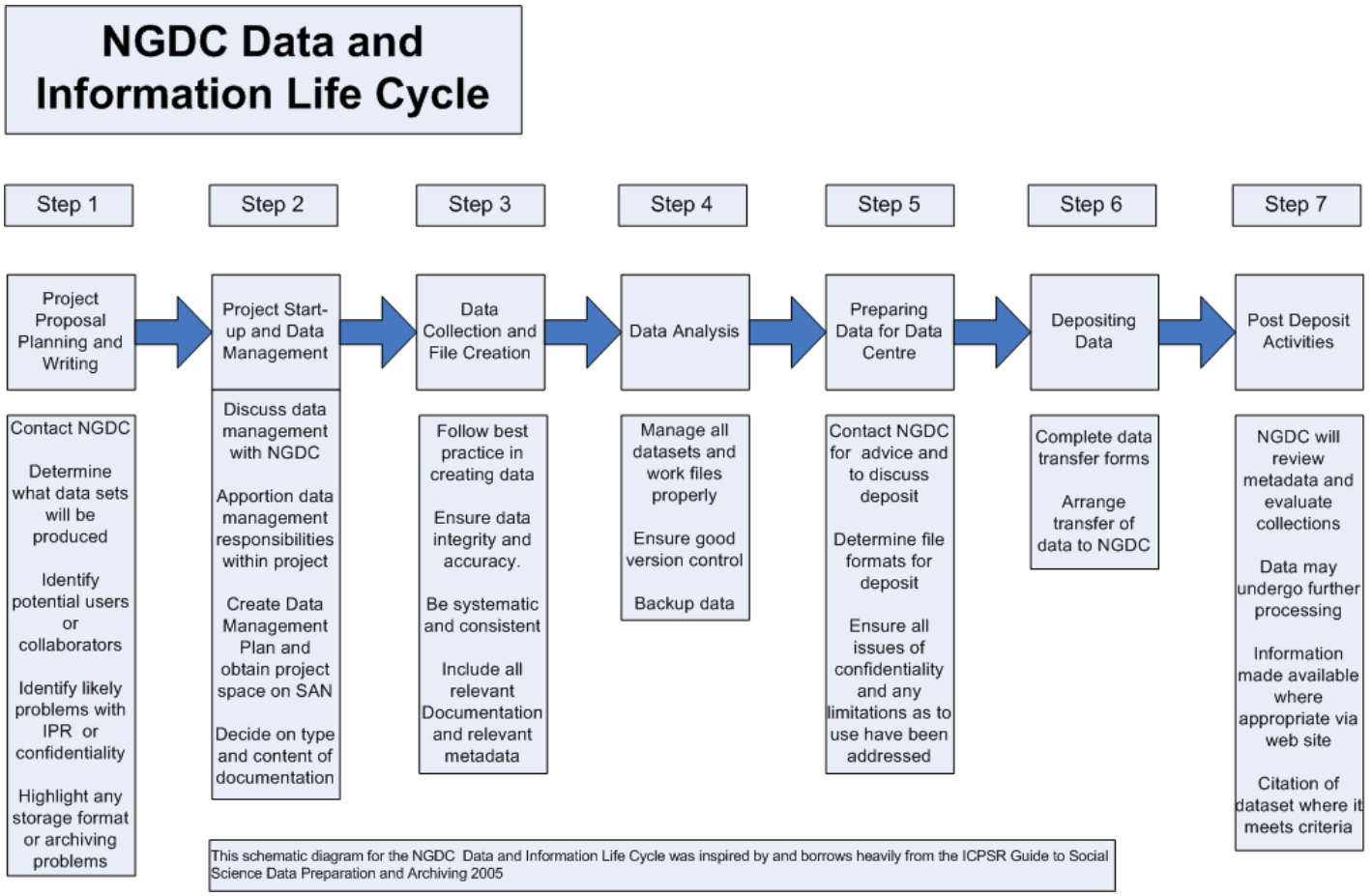
Increased recognition

- Datasets can now offer the same recognition opportunities as other publications.

Collaboration opportunities

- Opportunities to collaborate with other researchers creating similar datasets: creating national and regional datasets as subsequent joint publications.
- Opportunities to join teams building related datasets in other regions.

NGDC – supporting dataset publishing



RISKS FOR BGS SCIENTISTS

Risks for BGS Scientists

- Two year embargo period
- Missed science opportunities
- Missed commercial opportunities

Two year embargo period

To protect the research process NERC will allow those who undertake NERC-funded work a period to work exclusively on, and publish the results of, the data they have collected. This period will normally be a **maximum of two years from the end of data collection.**

Access to data

It is NERC's policy that:

1. All the environmental data held by the NERC Environmental Data Centres will normally be made openly available to any person or any organisation who requests them.
2. The only restrictions on access which we will apply are those supported by the exceptions on disclosure in the Environmental Information Regulations (2004). If it is proposed to restrict access to any data we will explain why.
3. To protect the research process NERC will allow those who undertake NERC-funded work a period to work exclusively on, and publish the results of, the data they have collected. This period will normally be a maximum of two years from the end of data collection.
4. All data held by the NERC Environmental Data Centres will be supplied for free except for large or complex requests where we may charge the cost of supply, or where third-party licence conditions either prevent such free supply, or require us to make specific charges.
5. All environmental data made available by the NERC Environmental Data Centres will be accompanied by a data licence. Data originally provided to NERC by a third-party may have their own access and licence conditions which restrict how or when we can make data available to others, in which case our data licence conditions will reflect these.
6. All those who use data provided by NERC are required to acknowledge the source of the data.

Missed science opportunities

- Others get great science out of data we collected but did not exploit.
- Loss of control
- Risk reputational loss

The Telegraph

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British scientists find 'lost' Charles Darwin fossils

British scientists have found scores of fossils the great evolutionary theorist Charles Darwin and his peers collected but that had been lost for more than 150 years.

One of the glass slides from the collection and Charles Darwin Photo: National News

7:41AM GMT 17 Jan 2012

42 Comments

Dr Howard Falcon-Lang, a paleontologist at Royal Holloway, University of London, said on Tuesday that he stumbled upon the glass slides containing the fossils in an old wooden cabinet that had been shoved in a "gloomy corner" of the massive, draughty British Geological Survey.

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Missed commercial opportunities

- BGS creates commercial opportunities from the data we hold: e.g.
  - GeoSure dataset
  - GeoSure insurance product
- With more open raw data others create profitable products, consultancy services from ‘our data’

THE HELP

Records

- Corporate Records Manager: Leilani Smith

- Records contacts and help:
- http://bgsintranet/committees/dmps/records.html

Materials Collections

- Chief Curator Mike Howe:

- Materials Collections contacts and help:
- http://bgsintranet/committees/dmps/collections.html

Who's Who

Data Specialists

Team Leader

Linda Ault
Team Leader
Keyworth
Tel: KW ext: 3344

Geophysics

Richard Luckett
Edinburgh
Tel: MH ext: 435

Geology

Tim McCormick
Keyworth
Tel: KW ext: 4193

Hydrogeology

Andy McKenzie
Wallingford
Tel: WL ext: 2295

Geochemistry

Susan Hobbs
Keyworth
Tel: KW ext: 3579

Marine Science

Paul Henni
Edinburgh
Tel: MH ext: 275

Contact these people for scientific and specialist data management advice; how to organise the storage of your project data

Who’s Who

Records Management

Leilani Smith
BGS Records
Manager
Keyworth
Tel: KW ext:3540

Rod Bowie
BGS Records
Manager
Keyworth
Tel: KW ext:3106

Richard Gillanders
BGS Records
Officer - NGRC (N)
Edinburgh
Tel: MH ext:307

Who's Who

Who are the Information Management SAN team?

Team Leader

Linda Ault
Team Leader
Keyworth
Tel: KW ext: 3344

Guidance and Advice

Susan Hobbs
Keyworth
Tel: KW ext: 3579

Charles Gowing
Keyworth
Tel: KW ext: 3345

Mary Mowat
Edinburgh
Tel: MH ext: 280

Contact these people for general information about the SAN and Data Management Planning.

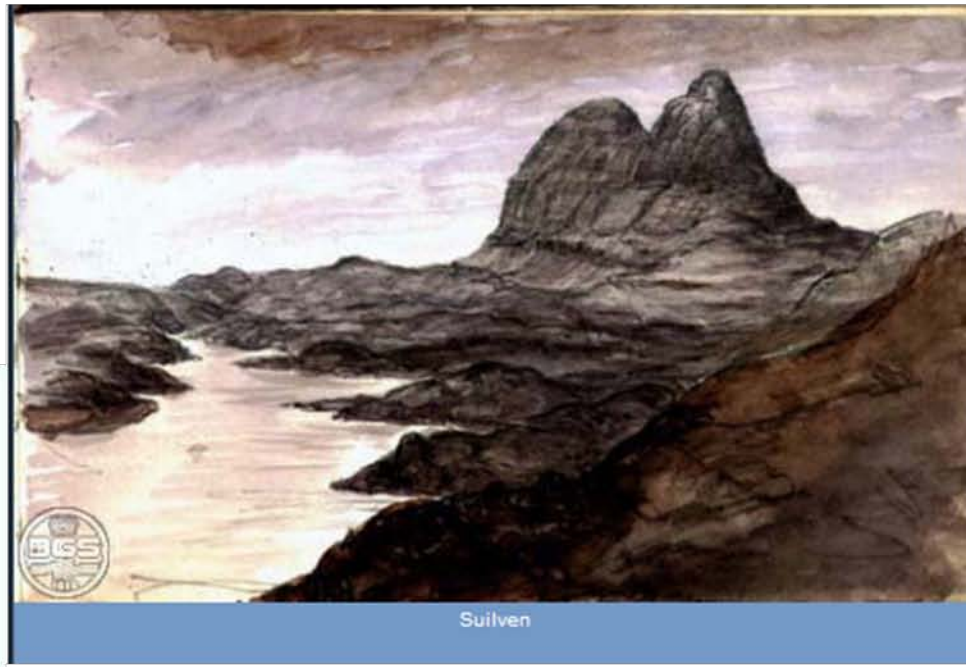
They are responsible for the final authorisation of all Data Management Plans.

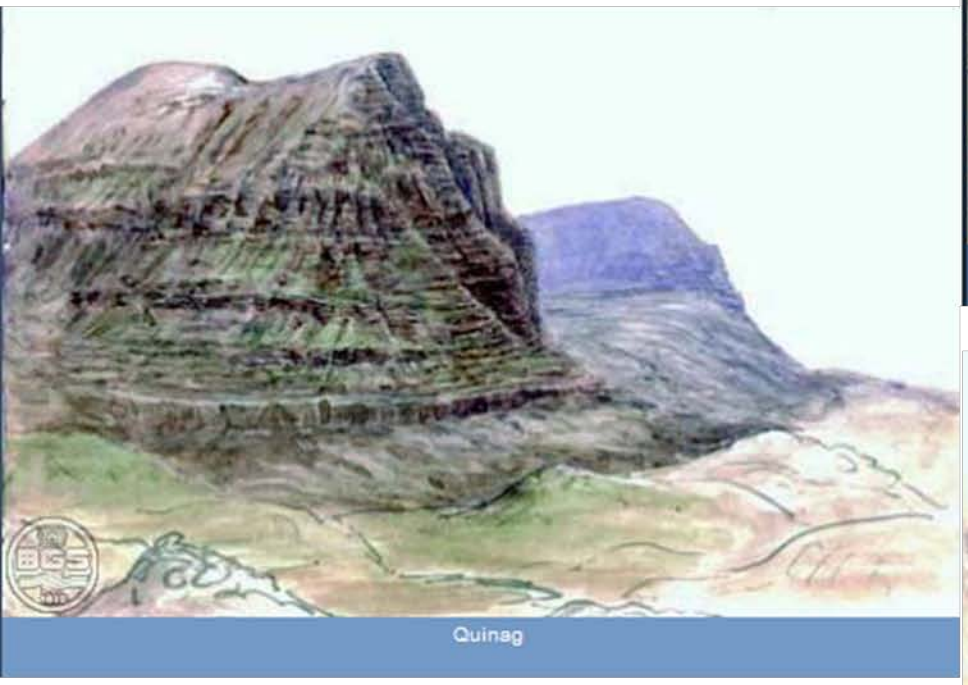
Training available soon

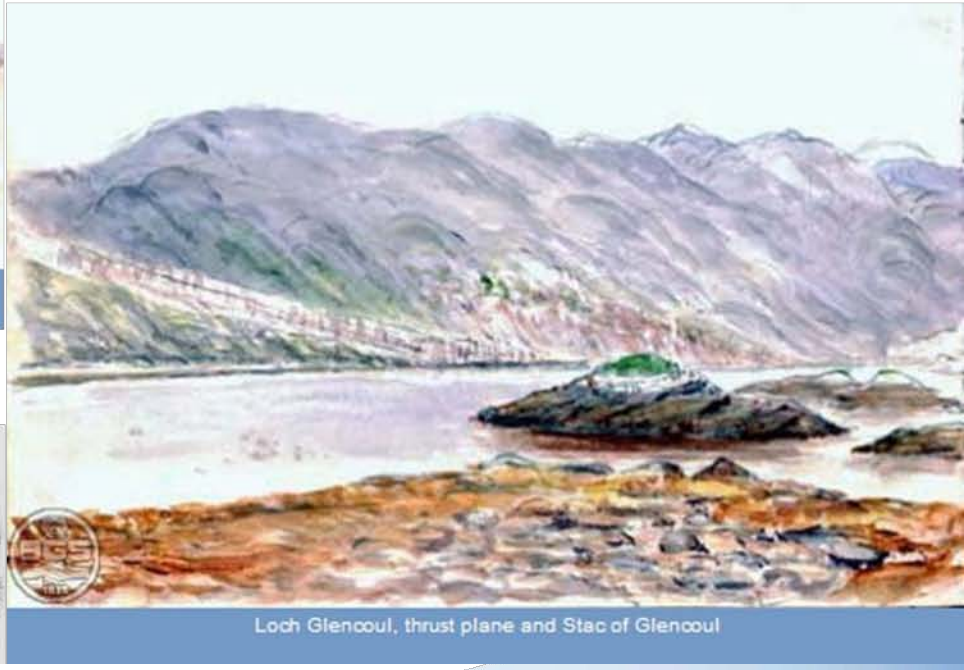
Your Data:

- Where to store it securely (and all about the SAN)
- What to do with it when your project ends
- How to advertise it
- Where the data applications are on the intranet
- How to get your data cited
- Ensuring data are reusable by others
- Document control – “Master Copies”
- Know your rights
- Who can help

Questions







Landscapes by Ben Peach (1842 – 1926)
BGS Geologist

From the BGS Archives